NISTTech

SUSPENDED DRY-DOCK PLATFORM

A rapidly deployed, stable, easily controlled, suspended work platform to manuever workers, equipment, and tools along ship surfaces.

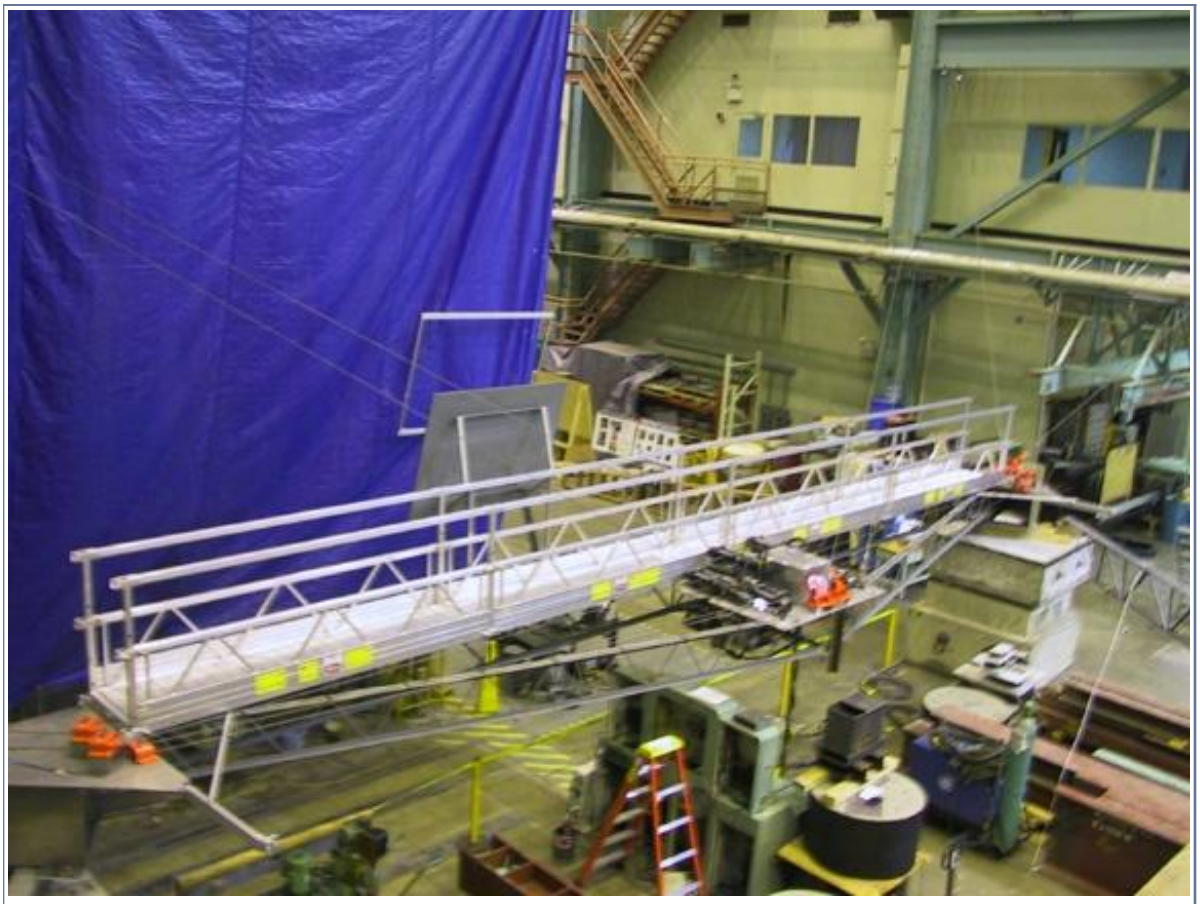
Description

Allows any platform the ability to move in three dimensional space with ease. The Flying Carpet is a platform of any shape, size or material that is suspended by a four point cable system. With a simple joystick and the specialized control software it can be safely moved anywhere within the boundaries of the four points. The unique cable rigging design makes the platform exceptionally stable. Each of the four points has at least one winch. The winches are controlled either on the platform or remotely by a central PC with a simple joystick, allowing safe movement in 3 dimensional space. The platform can be maneuvered so that it is always exactly level (parallel to the ground) or in any of the six degrees of freedom.

The Flying Carpet is an alternative for rigid scaffolding, suspended inline scaffolding, or a single cable. It could be used to move a rock star (or whole band) on a plexiglass platform out over the crowd; for construction (e.g., precise positioning of huge sewer pipes or structural members safely with no people manually aligning them); to move any object over a surface where it may be desirable not to be on the ground; or even a thrill ride at amusement parks like Kings Island.

The Flying Carpet has seven patents and the control software and free licensing through NIST. A full- scale, 'looks- like, works-like' unit has been built and tested in the NIST Manufacturing Engineering Laboratory. Also, numerous other small- scale models have been created to prove feasibility of this device.

Images



Flying Carpet shown positioning with 7 mm tolerance and holding a plate, jigged to the Flying Carpet, into a mock ship hole

Applications

- **Ship building**
  Easily maneuverable, high strength, and adaptable to different design constraints
- **Manufacturing**
  Can be used in production and assembly lines in many industries such as automobiles, steel and concrete
- **Construction**

Assists in the transport and completion of large structural members needed for large construction projects

- **Entertainment**
  Adapts to amusement park rides and entertainment spectacles

Advantages

- **Safety and stability**
  Extensively tested, provides a safe and steady platform capable of remaining parallel to the ground or rotating in any of the six degrees of freedom
- **Joystick controlled**
  Can be controlled by just one joystick, located either on the moving platform or remotely in a control booth
- **Unlimited mobility**
  Movement is unrestricted i.e. platform has all six degrees of freedom within the space between the four suspension points
- **Cable suspension**
  Utilizes a four-point cable suspension system

Abstract

A cabled platform suspension system includes a platform having first and second support points at spaced locations along a front work-access edge of the platform and a third, stabilizing/rotator support point. A platform support structure, such as the two or four towers of a dry dock, defines first, second, third and fourth platform suspension points arranged in a substantially rectangular pattern. Six cables are connected between the platform and support structure, with five cables being respectively connected between the first and fourth suspension points and the first and second platform support points, two cables being respectively connected between the second and third suspension points and the first and second platform support points and two cables being respectively connected between the second and third suspension points and the third platform support point.

Inventors

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Citations

1. R. Bostelman, W. Shacklemord, F. Proctor, J. Albus. The flying carpet: a tool to improvie ship repair efficiency. American Society of Naval Engineers Symposium, Manufacturing Technology for Ship Construction and Repair, September 10-12, 2002, Bremerton, Washington.

Related Items

- The Flying Carpet
- A Tool to Improve Efficiency in Large Scale Manufacturing
- Toward Next-Generation Construction Machines
- MERWYN Business Simulation Report

References

- U.S. Patent # 6,648,102 issued 11-18-2003, expires 01/05/2022
- Docket: 00-028US

Status of Availability

This invention is available for licensing exclusively or non-exclusively in any field of use.

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